IGNITING PULSE BOOSTER CIRCUIT

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--This Application is a national phase Application under 35 U.S.C. 371 claiming the benifit of PCT/IB03/04547 filed on 10/13/2003, which has priority benifit based on European patent Office Application No. 02079601.7 filed on 11/04/02.--

The present invention relates in general to a device for driving a gas discharge lamp, more specifically a high-intensity discharge (HID) lamp.

Particularly, the present invention relates to a device for generating ignition pulses for a gas discharge lamp, more specifically a HID lamp.

To operate gas discharge lamps, additional lamp gear is required to stabilize the lamp (maintaining the nominal lamp voltage, current and power levels). To obtain this, conventional (electromagnetic) gear is the standard option. This involves a ballast choke to stabilize the lamp and an igniter to ignite the lamp. Nowadays, conventional gear is more and more replaced by electronic gear. This electronic gear combines the functions of lamp power control and ignition, often together with mains power factor correction, in one electronic circuit. Both types of ballasts provide a so called open circuit voltage to the lamp before ignition. In the case of conventional gear, this is the mains voltage. In electromagnetic gear, this is mostly a square wave voltage with a certain amplitude, e.g. 300 V. For ignition, high voltage pulses are superposed to this open circuit voltage by the igniter circuit. These pulses have to cause a breakdown in the gas discharge vessel. The open circuit voltage mentioned before has to be sufficiently high to provide take-over, this means sustaining a current in the ignited lamp. From this moment, the lamp power will rise to its nominal value (run-up). The ignition pulses as mentioned have a magnitude in the order of 3-5 kV.

A magnitude in the order of 3-5 kV for said ignition pulses has appeared sufficient to ensure ignition when a lamp is cold. However, HID lamps have the problem that they require a much stronger ignition pulse if they are still hot after they have been switched off (so-called hot restrike), typically in the order of 20 kV. Thus, a HID lamp needs to cool down after having been switched off, before such lamp can be switched on again using a conventional driver.

Alternatively, a driver might be designed for providing ignition pulses having a magnitude in the order of about 20 kV, but this makes such driver more expensive, larger and heavier although such high pulses for hot restrike are required or desired only in some applications. Further, the wiring between driver and lamp needs to be designed for 20 kV instead of 5 kV, which also adds to the costs.